Tuffbond® 394

Product Description

Hernon® Tuffbond® 394 is a single component, high temperature resistant, heat activated epoxy. It cures to a high-performance thermoset system with excellent adhesion properties to a wide variety of substrates. **Tuffbond® 394** will change from amber-yellow to a reddish brown upon cure.

Bonding the voice coil to the cone has been a challenge for engineers, specifically when the adhesive temperature resistance requirement is above 200ºF (93ºC). Two component epoxy was commonly used for this application, but limitations such as mixing ratio, cure speed, potential solidification in equipment and the need for equipment flushing solvents have made **Tuffbond® 394** more practical.

Product Benefits

- High temperature resistance.
- Single component (no mixing, no pot life).
- Solventless.
- Cures on demand (heat cure).
- Will not slip during cure.
- Changes color upon cure (yellow to brown).
- Excellent adhesion to various substrates.
- Gives high shear.
- Low water absorption.
- Very rigid.
- Low density.
- No porosity upon cure.

Typical Properties (Uncured)

Property	Value
Resin	Epoxy
Appearance	Amber-yellow liquid
Viscosity @ 25ºC, cP	44,000 to 56,000
Specific gravity	1.19

Curing Characteristics

Tuffbond® 394 can be cured by infrared or convection oven. Cure time will depend on the bond-line temperature.

Temperature, ºC (ºF)	Cure Time, minutes
150 (300)	≤1.5
120 (250)	≤ 3
100 (212)	≤ 9

Typical Cured Performance

Shear Strength, ASTM D1002
Cured at temperature listed

Substrate	Cure Time	Temperature	Shear Strength, psi
Steel	5 minutes	150 ºC	2000 - 3500
Steel	1 hour	90 ºC	1500 - 2500

Typical Properties (Cured)

Property	Value
Volume Shrinkage, ASTM D6289, %	0.83
Coefficient of thermal expansion, ASTM D696 (K^{-1}), at 55 ºC, ppm	42
Coefficient of thermal expansion, ASTM D696 (K^{-1}), after tg, ppm	220

Typical Environmental Resistance

Chemical/Solvent Resistance
Shear Strength, grit blasted steel, ASTM D1002
Cured for 2 minutes at 150ºC
1 week - immersion in chemical/solvent

Chemical/Solvent	% Initial Strength Retained
Water	99
Motor Oil	100
Hydraulic Fluid	99
Aviation Fluid	100
Methanol	90

General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Storage
Tuffbond® 394 must be stored under refrigeration at a temperature of approximately 40º F for extended shelf life. Keep container tightly closed when not in use. To prevent contamination of unused material, do not return any material to its original container.
Dispensing Equipment

Hernon® offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.